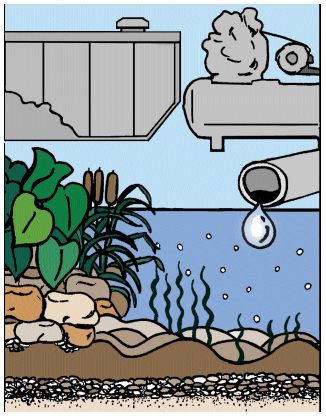
Individual Wastewater Systems



System Selection

Wastewater is generated by most of the water usages in a home. This includes toilet wastes, kitchen wastes, bath water, and laundry waste. Because wastewater contains nitrates, phosphates, bacteria, and viruses, it must be treated and/or disposed of in a way that will safeguard our drinking water supply and reduce potential health hazards.

Each home not connected to a central or public wastewater treatment facility must have and maintain its own wastewater system. A properly functioning wastewater system disposes of wastes and treats the water so that it will be safe when it reaches recreational waters or drinking water tables. Just because toilets flush and sinks drain does not necessarily mean that a wastewater system is functioning properly or that drinking water and health are being safeguarded.

Pre-Construction Information

Once the soil has been altered on a piece of property, many system options may no longer be suitable. In fact, if property is graded or truncated, it may only be suitable for one system. This system may also require that additional soil be hauled in to replace the soil material removed. This adds to the total cost of the system and can be avoided by checking with the Health Department first.

If construction on a home has been initiated before the Health Department is contacted, the type or types of systems suitable may be very limited. Therefore the type and design of wastewater system suited to the site may therefore be very expensive, depending on the property. This is why it is very important to contact the Health Department before construction is initiated. It could save you much money and many problems.

There are many types of wastewater systems. The type best suited for your property will depend upon five major factors: soil permeability, depth to seasonal water tables, property size and shape, house placement on the property, and how the house will be used (permanent or weekend).

Soil Permeability

Soil characteristics have a major effect on the type of wastewater system that will function properly at any potential site. Permeability is one such characteristic; it defines the rate at which water will move in a soil. It's essential to know the permeability of a site, since most wastewater systems utilize the soil to dispose of the treated effluent. How permeable the soil is determines the size of area needed to adequately dispose of the effluent generated by a home. Soils with low clay contents have high permeability rates and therefore require less of an absorption area than do soils with high clay contents.

Depth to Seasonal Water Tables

Another important soil characteristic is the depth to seasonal water tables. These water tables are not used for drinking purposes, but are shallow — less than five feet — and seasonal—late winter and early spring. They may be at the surface but are typically between the surface and a depth of 24 inches.

Seasonal water tables are caused by a restrictive layer that won't allow the movement of rain water deeper into the soil. As rainfall increases, the soil material above these restrictive layers becomes saturated. These water tables may surface in ditches or along the lower parts of hill sides. Sometimes they may even flow laterally in the soil to an area that allows movement into drinking water aquifers. Once wastewater enters a saturated soil, it moves rapidly and prevents the soil from effectively filtering the pathogens — bacteria and viruses — present in the wastewater.

For these reasons, it's essential that any underground wastewater system be placed at least 12 inches above seasonal water tables. Often these seasonal water tables are so close to the soil surface that a 12-inch separation would put a wastewater system above the soil surface, preventing the use of several types of wastewater systems.

Property Size and Shape

Some parcels of property are so small or narrow that certain types of wastewater systems cannot physically be placed on the property and still maintain setbacks from property lines, recreational waters, and water wells. When unsuitable soil characteristics are added to this, some parcels of property may be suited for only one choice, at best.

There are also some parcels of property that aren't suited for any design based individual wastewater system because of soil conditions and size. Size is the factor that most often renders property unsuitable for an individual wastewater system. With enough property to work with, a wastewater system can be designed at almost every site. The best time to have a soil and site evaluation conducted is before the house is started and before any soil has been altered, Each home not connected to a central or public wastewater treatment facility must have and maintain its own wastewater system. A properly functioning wastewater system disposes of wastes and treats the water so that it will be safe when it reaches recreational waters or drinking water tables. Just because toilets flush and sinks drain does not necessarily mean that a wastewater system is functioning properly or that drinking water and health are being safeguarded. added, or removed from the property. It's even better to have the property checked before purchasing.

Home Placement on the Property

Most property owners have already selected the site of their future home when they contact the Health Department. Sometimes the area selected for the house site is also the best site for a wastewater system. This often will require the installation of a more expensive system. Placement of a home near a property line may even require that the wastewater be pumped to another area of the property before it can be disposed.

Home Use: Permanent or Weekend

A few types of wastewater systems — aerobic treatment plants, for example — need to be used daily to function properly. The use of these systems is not recommended on homes used occasionally such as weekend or vacation homes.

Soil and Site Evaluation

At the request of the property owner, a Public Health Environmentalist from the County Health Department will conduct a soil and site investigation to determine the type of design-based wastewater system best suited for the house and property in question. The primary concern in system selection is the proper treatment and disposal of wastewater to safeguard drinking water and reduce potential health hazards.

System Selection

Septic tanks provide only primary treatment and must be followed by a method of secondary treatment such as:

- underground absorption,
- sand mound,
- sand filter or plant rock filter, chlorination, and discharge, or
- lagoon, chlorination, and discharge.
- treatment plants provide adequate treatment for discharge with only chlorination.

Discharge systems must maintain all of the wastewater on the property of the generator. There must be a minimum distance of 50 feet between the property line and the point where the wastewater will stop flowing, not the discharge point. The location of the discharge point must be located such as to ensure this 50-foot buffer even in the wetter periods of the year. This will usually require at least two acres but may require more or less depending upon the location of the house and soil/site characteristics.

If space is available, these systems may be used in areas with high seasonal water tables and/or soil textures with a high clay content.

For more information about selecting a wastewater system, contact the County Health Department for a soil and site evaluation of your property.

MISSISSIPPI STATE DEPARTMENT OF HEALTH

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